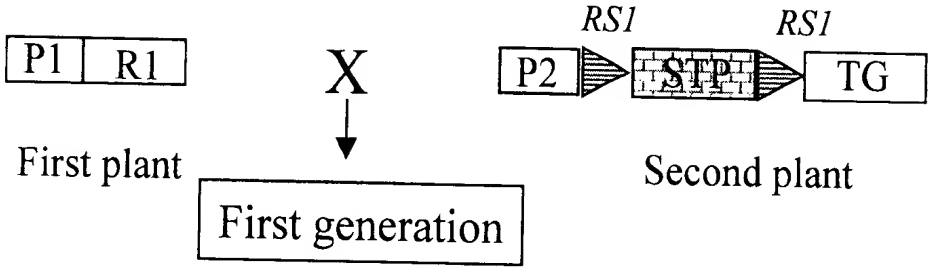
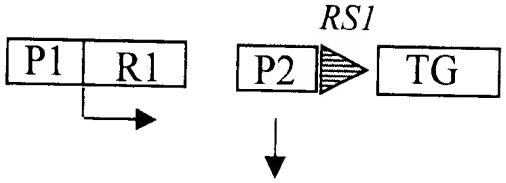
FIGURE 1



Stage 1: R1 recombinase expression occurs under promoter (P1) primes trait gene (TG)



Stage 2: TG expression occurs under P2 promoter, e.g. mature leaf promoter

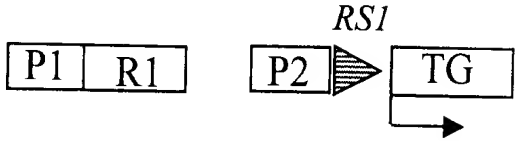
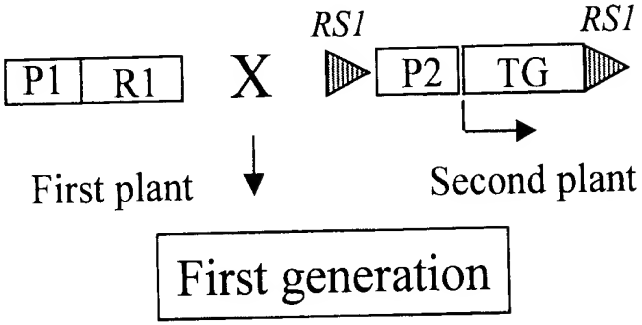
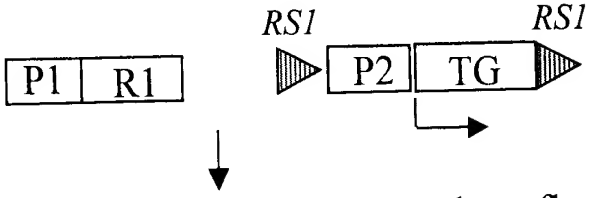


FIGURE 2



Stage 1: Trait expression occurs under promoter P2



Stage 2: R1 recombinase expression occurs under male or floral common germline promoter (P1) removes trait gene from pollen or progeny seed of first generation, respectively.

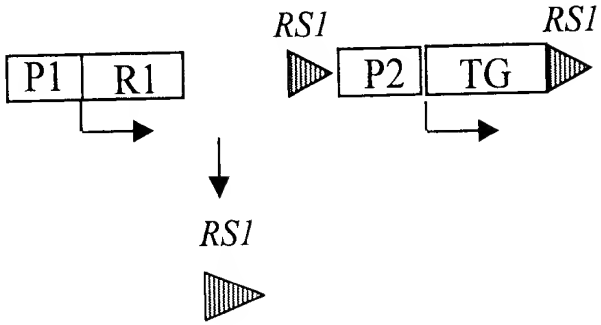
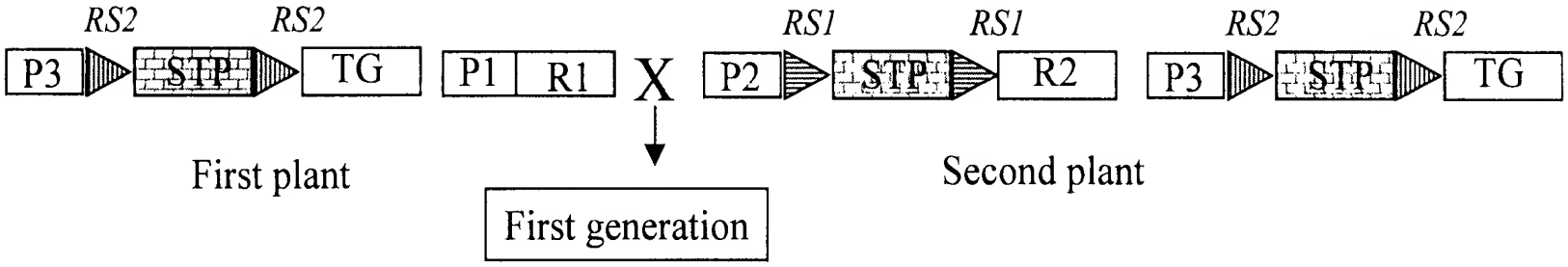
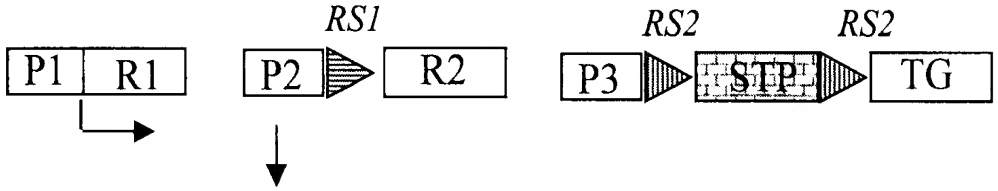


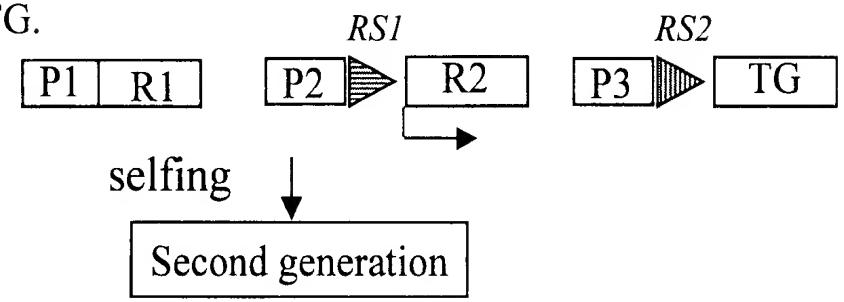
FIGURE 3



Stage 1: R1 recombinase expression occurs under common germline promoter (P1) primes R2 gene.



Stage 2: R2 recombinase expression occurs under floral common germline promoter (P2) primes trait gene TG.



Stage 3: TG expression occurs under promoter P3, e.g., embryo or germination promoter

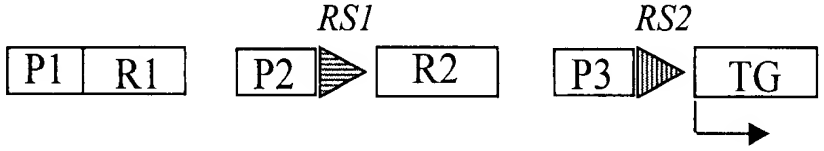
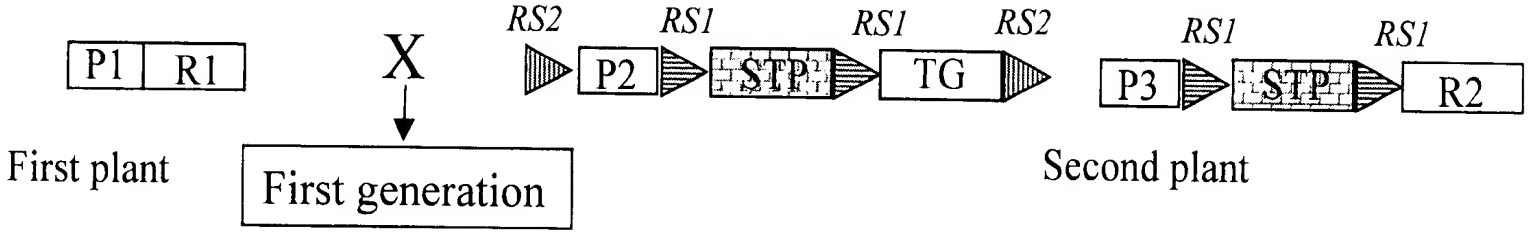
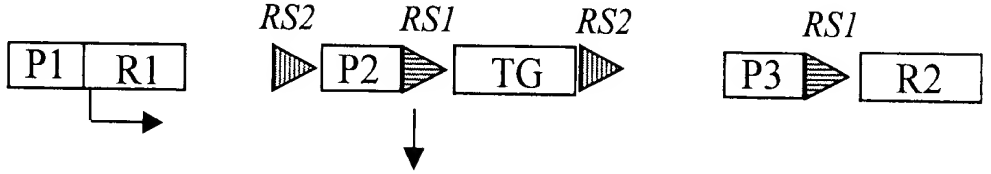


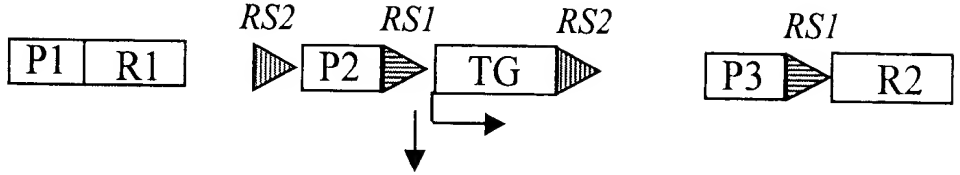
FIGURE 4



Stage 1: R1 recombinase expression occurs under common germline P1 promoter primes both trait (TG) and R2 genes.



Stage 2: TG expression occurs under P2 promoter



Stage 3: R2 recombinase expression occurs under male germline or floral common germline promoter P3 removes TG from pollen or progeny seed, respectively, of first generation.

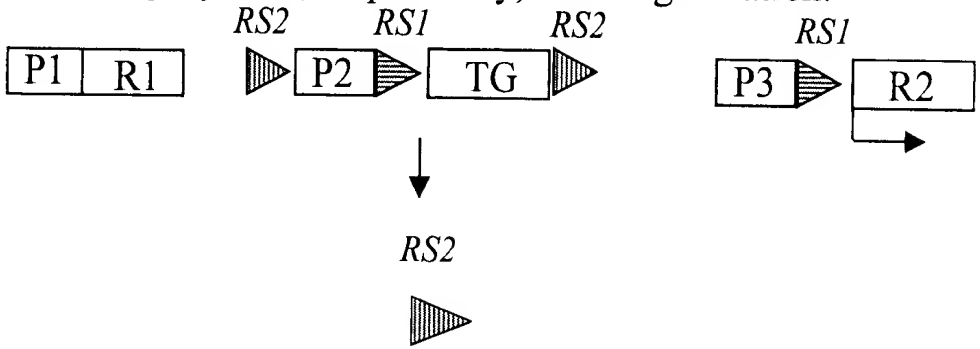
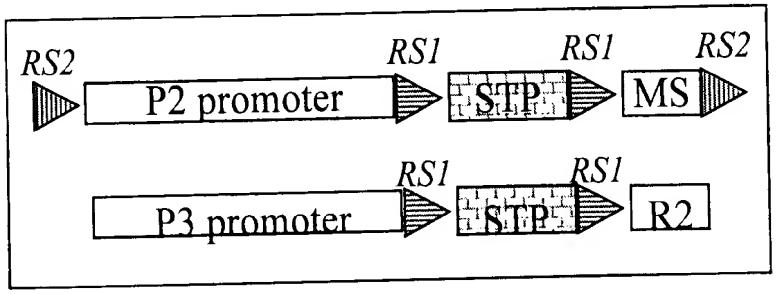
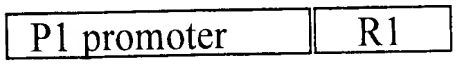


FIGURE 5



X

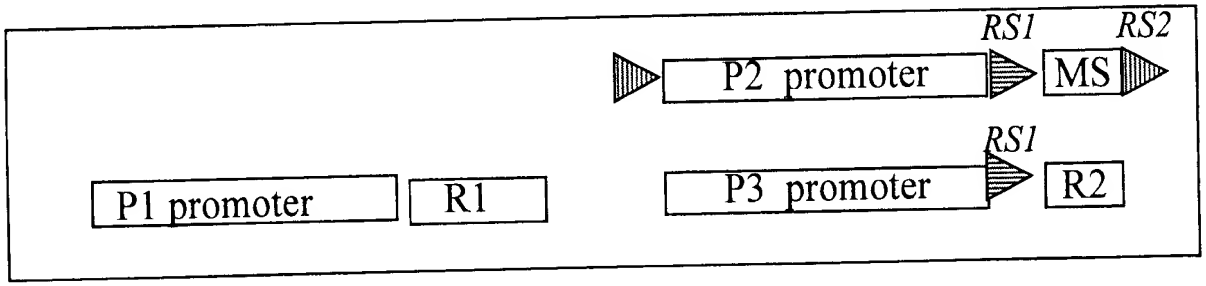


male fertile second plant

male fertile first plant

R1 recombinase expression occurs under germline promoter (P1) and primes R2 recombinase & male sterility (MS) genes

MS expression occurs under promoter P2, e.g., anther-specific promoter



X

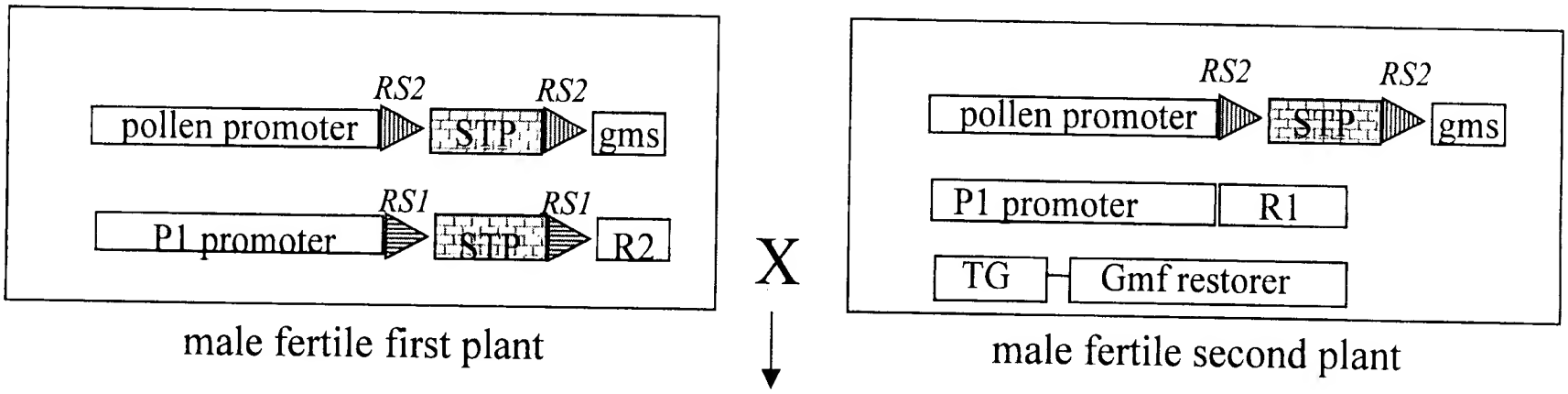
male fertile
Third plant

male sterile progeny

R2 recobinase expression under germline promoter P3, e.g., seed-specifc promoter, removes MS gene to restore frtility to F1 hybrid.

male fertile F1 hybrid

FIGURE 6



male fertile first plant

male fertile second plant

First generation

R1 recombinase expression under germline promoter P1 primes R2 recombinase gene.

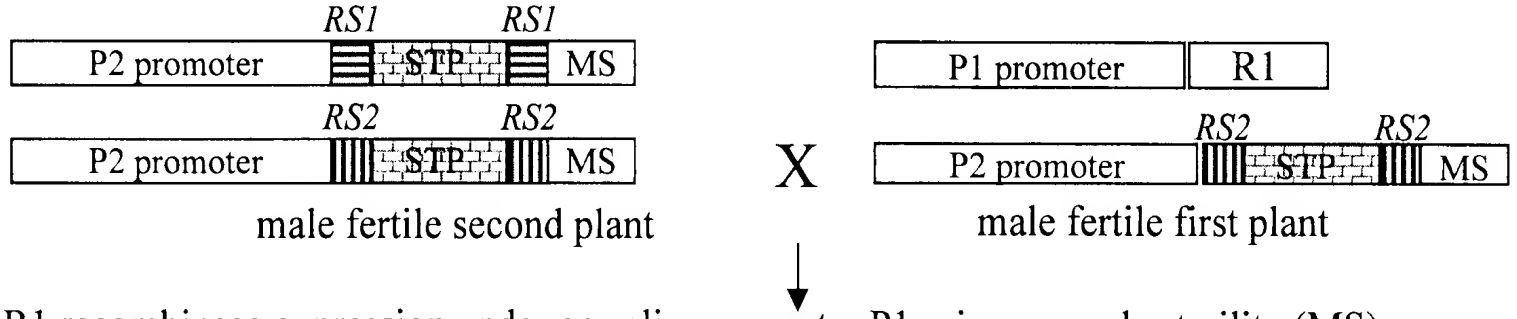
R2 expression under germline promoter P1 primes gametophytic male sterility (gms) gene

Gms expression under pollen specific rpomoter leads to sterility in pollen without Trait (TG) and gametophytic male fertility (gmf) restorer gene

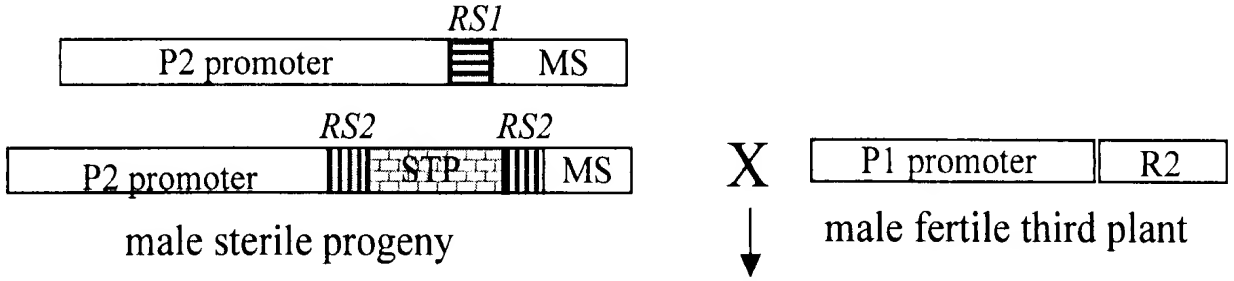
selfing

TG is inherited in all second generation grain

FIGURE 7



R1 recombinase expression under germline promoter P1 primes a male sterility (MS) gene that is then expressed under promoter P2, e.g., anther promoter.



R2 recombinase expression under germline promoter P1 primes other male sterility (MS) gene that is then expressed under promoter P2, e.g., anther promoter.

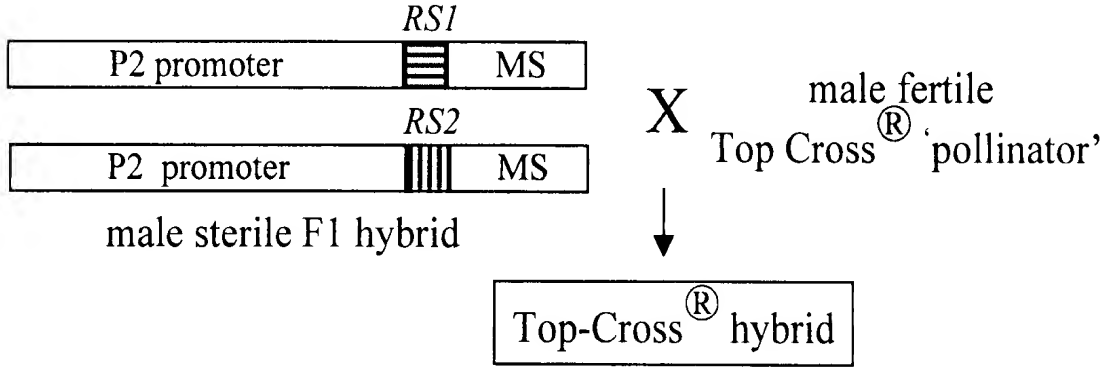
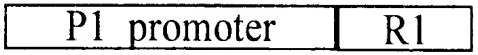


FIGURE 8

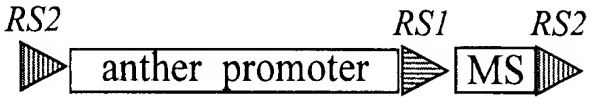
X



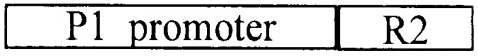
male fertile second plant

male fertile first plant

R1 recombinase expression under germline promoter P1 primes male sterility (MS) gene that is then expressed under promoter P2, e.g., anther-specific promoter.



X



male sterile progeny
of second generation

male fertile third plant

R2 expression under germline promoter (P1) removes MS gene to restore fertility.

male fertile F1 hybrid